

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in this application.

Listing of Claims

1. (Currently amended) A method of producing hyaluronic acid comprising
 - (1) a step of transforming a plant cell using an expression recombinant vector comprising
 - (i) a DNA encoding hyaluronic acid synthase or
 - (ii) a DNA encoding a polypeptide having an amino acid sequence having one or more amino acid deletions, substitutions, additions or insertions in an amino acid sequence of the hyaluronic acid synthase and having an activity of synthesizing ~~the~~ hyaluronic acid,
 - (2) a step of growing a transformant obtained by transformation of step (1), and
 - (3) a step of separating the hyaluronic acid produced by the transformant, wherein the hyaluronic acid synthase is derived from a chlorella virus.
2. (Currently amended) A method of producing hyaluronic acid comprising
 - (1) a step of transforming a plant using an expression recombinant vector comprising
 - (i) a DNA encoding hyaluronic acid synthase or
 - (ii) a DNA encoding a polypeptide having an amino acid sequence having one or more amino acid deletions, substitutions, additions or insertions in an amino acid sequence of the hyaluronic acid synthase and having an activity of synthesizing ~~the~~ hyaluronic acid,
 - (2) a step of growing a transformant obtained by transformation of step (1), and
 - (3) a step of separating the hyaluronic acid produced by the transformant, wherein the hyaluronic acid synthase is derived from a chlorella virus.
3. (Currently amended) A method of making a transformed plant cell having an ability of producing hyaluronic acid comprising
 - a step of transforming a plant cell using an expression recombinant vector comprising
 - (i) a DNA encoding hyaluronic acid synthase or

(ii) a DNA encoding a polypeptide having an amino acid sequence having one or more amino acid deletions, substitutions, additions or insertions in an amino acid sequence of the hyaluronic acid synthase and having an activity of synthesizing ~~the~~ hyaluronic acid, wherein the hyaluronic acid synthase is derived from a chlorella virus.

4. (Currently amended) A method of making a transformed plant having an ability of producing hyaluronic acid comprising

a step of transforming a plant using an expression recombinant vector comprising

(i) a DNA encoding hyaluronic acid synthase or

(ii) a DNA encoding a polypeptide having an amino acid sequence having one or more amino acid deletions, substitutions, additions or insertions in an amino acid sequence of the hyaluronic acid synthase and having an activity of synthesizing ~~the~~ hyaluronic acid, wherein the hyaluronic acid synthase is derived from a chlorella virus.

5. (Currently amended) The method according to claim 4 wherein the expression recombinant vector ~~is the expression recombinant vector comprising (1) (i) the DNA encoding hyaluronic acid synthase or (ii) the DNA encoding the polypeptide having the amino acid sequence having one or more amino acid deletions, substitutions, additions or insertions in the amino acid sequence of the hyaluronic acid synthase and having the activity of synthesizing the hyaluronic acid and~~ further comprises (2) an organ-specific or tissue-specific promoter, and wherein the resulting transformed plant ~~is the transformed plant having~~ has the ability of producing the organ-specific or tissue-specific hyaluronic acid.

6. (Canceled)

7. (Canceled)

8. (Currently amended) A transformed plant cell having an ability of producing hyaluronic acid, obtained by transforming a plant cell using an expression recombinant vector comprising

- (i) a DNA encoding hyaluronic acid synthase or
- (ii) a DNA encoding a polypeptide having an amino acid sequence having one or more amino acid deletions, substitutions, additions or insertions in an amino acid sequence of the hyaluronic acid synthase and having an activity of synthesizing ~~the~~ hyaluronic acid,
wherein the hyaluronic acid synthase is derived from a chlorella virus.

9. (Currently amended) A transformed plant, ~~having an ability of producing hyaluronic acid~~ or a progeny thereof or an organ thereof or a tissue thereof, having the ability of producing hyaluronic acid ~~having the same nature as in the plant~~, wherein said plant is obtained by transforming a plant using an expression recombinant vector comprising

- (i) a DNA encoding hyaluronic acid synthase or
- (ii) a DNA encoding a polypeptide having an amino acid sequence having one or more amino acid deletions, substitutions, additions or insertions in an amino acid sequence of the hyaluronic acid synthase and having an activity of synthesizing hyaluronic acid,
wherein the hyaluronic acid synthase is derived from a chlorella virus.

10. (Currently amended) The transformed plant or the progeny thereof or the organ thereof or the tissue thereof ~~having the same nature as in the plant~~ according to claim 9, wherein the plant is ~~the plant~~ selected from the group consisting of angiosperm, gymnosperm, pteridophyte, and bryophyte.

11. (Currently amended) The transformed plant or the progeny thereof or the organ thereof or the tissue thereof ~~having the same nature as in the plant~~ according to claim 9, wherein the organ is one or two or more organs selected from the group consisting of a root, a stem, a rootstock, a leaf, a flower, a root truncation, a seed, and a shoot apex.

12. (Currently amended) The transformed plant or the progeny thereof or the organ thereof or the tissue thereof ~~having the same nature as in the plant~~ according to claim 9, wherein the tissue is one or two or more tissues selected from the group consisting of an epidermis, a phloem, a parenchyma, a xylem, and a vascular bundle.

13. (Currently amended) The transformed plant or the progeny thereof or the organ thereof or the tissue thereof ~~having the same nature as in the plant~~ according to claim 9, wherein the expression recombinant vector ~~is the expression recombinant vector comprising (1) (i) a DNA encoding hyaluronic acid synthase or (ii) a DNA encoding a polypeptide having an amino acid sequence having one or more amino acid deletions, substitutions, additions or insertions in an amino acid sequence of the hyaluronic acid synthase and having an activity of synthesizing hyaluronic acid and~~ further comprises (2) a organ-specific or tissue-specific promoter, ~~and wherein the resulting transformed plant is the transformed plant having~~ has the ability of producing the organ-specific or tissue-specific hyaluronic acid.

14. (Currently amended) A transformed plant cell which produces hyaluronic acid synthase, obtained by transforming a plant cell using an expression recombinant vector comprising
(i) a DNA encoding hyaluronic acid synthase or
(ii) a DNA encoding a polypeptide having an amino acid sequence having one or more amino acid deletions, substitutions, additions or insertions in an amino acid sequence of the hyaluronic acid synthase and having an activity of synthesizing ~~the~~ hyaluronic acid, wherein the hyaluronic acid synthase is derived from a chlorella virus.

15.(Currently amended) A transformed plant, ~~which produces hyaluronic acid synthase or a progeny thereof or an organ thereof or a tissue thereof, having the ability of producing hyaluronic acid~~ having the same nature as in the plant, wherein said plant is obtained by transforming a plant using an expression recombinant vector comprising
(i) a DNA encoding hyaluronic acid synthase or
(ii) a DNA encoding a polypeptide having an amino acid sequence having one or more amino acid deletions, substitutions, additions or insertions in an amino acid sequence of the hyaluronic acid synthase and having an activity of synthesizing ~~the~~ hyaluronic acid, wherein the hyaluronic acid synthase is derived from a chlorella virus.

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Canceled)

20. (Withdrawn) A hyaluronic acid produced by the transformed plant cell according to claim 8.

21. (Withdrawn) A hyaluronic acid produced by the transformed plant or the progeny thereof or the organ thereof or the tissue thereof having the same nature as in the plant according to claim 9.

22. (New) A method of producing hyaluronic acid comprising

(1) a step of transforming a plant cell using an expression recombinant vector comprising

(i) a DNA encoding hyaluronic acid synthase or

(ii) a DNA encoding a polypeptide having an amino acid sequence of the hyaluronic acid synthase,

(2) a step of growing a transformant obtained by transformation of step (1), and

(3) a step of separating the hyaluronic acid produced by the transformant,

wherein the hyaluronic acid synthase is derived from a chlorella virus.